



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/800,999      | 03/08/2001  | Sung Bae Jun         | P. 194              | 6665             |

34610 7590 03/09/2004

FLESHNER & KIM, LLP  
P.O. BOX 221200  
CHANTILLY, VA 20153

|          |
|----------|
| EXAMINER |
|----------|

BONSHOCK, DENNIS G

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

2173

DATE MAILED: 03/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/800,999

Applicant(s)

JUN ET AL.

Examiner

Dennis G Bonshock

Art Unit

2173

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 14 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-41 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

**Final Rejection**

***Response to Amendment***

1. It is hereby acknowledged that the following papers have been received and placed on record in the file: Amendment A as received on 1-14-04.

2. Claims 1-41, have been examined.

Status of claims:

3. Claims 1-7, 9, 11, 12, 14-18, 20-27, and 30-39 are rejected under 35 U.S.C. 102(e) as being anticipated by Hirai et al., Patent # 6,526,215, hereinafter Hirai.

4. Claims 28 and 29 are rejected under 35 U.S.C. 102(e) as being anticipated by Ratakonda, Patent # 5,956,026.

5. Claims 8, 10, 13, 19, 40, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirai and Ratakonda.

***Claim Rejections - 35 USC § 112***

6. Claims 1, 3, 5, 6, 10, 12, 13, 15, 17, 18, 24, and 28-41 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for selecting one of a key frame or a key region, does not reasonably provide enablement for selecting one of a key frame and a key region. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims. The specification does not provide support for the creation of a synthetic key frame from both key frame and key region elements.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1-7, 9, 11, 12, 14-18, 20-27, and 30-39 are rejected under 35 U.S.C. 102(e) as being anticipated by Hirai et al., Patent # 6,526,215, hereinafter Hirai. With regard to claim 1, which teaches a method of generating key frames comprising the steps of: receiving a video stream and dividing it into meaningful sections, selecting the key frames, and combining key frames to form one key frame, Hirai teaches, in column 4, line 45-64 and column 10, lines 40-45, an apparatus for receiving moving picture data, dividing it into scenes, further dividing it up into cuts, and forming still images as representatives (key frames) of these subdivisions.

9. With regard to claim 2, which teaches the dividing step including receiving video from a second source, Hirai teaches, in column 3, line 8 and in figure 5, receiving input from sources such as a movie, and a still image.

10. With regard to claim 3, which teaches the selecting step of including key frames output from a second source, Hirai teaches, in column 3, line 8 and in figure 5, receiving input from sources such as a movie, and a still image.

Art Unit: 2173

11. With regard to claim 4, which teaches that a section is a unit of a segment, Hirai teaches, in column 4 line 45, that a scene (section) comprises a plurality of cuts (segments).

12. With regard to claim 5, which teaches a method of describing a key frame comprising, dividing a video into meaningful segments, and describing a list of key frames, Hirai teaches, in column 4, lines 50-52, a detecting means for designating said representative still images of said scenes and cuts to edit said moving picture. Hirai also teaches, in column 15, line 26, that video data belonging to the M-icon (key frame) is displayed in the form of a list.

13. With regard to claim 6, which teaches the describing step including: an ID, a representative segment locator, a key frame list for identifying elements of a key frame, and also include a fidelity value, and information on arrangement, Hirai teaches, in column 3, line 8, and in figures 4 and 5, video linked information including names, types, and lengths of media. Hirai further teaches, in column 15, line 26, video data belonging to the M-icon that is displayed in the form of a list. Hirai further teaches, with regard to the items that be included, in column 5, line 6, a degree of abstraction, and in column 9, lines 35-51 in conjunction with figures 8 and 10, Hirai teaches the arrangement of parent and child elements in a Hierarchy.

14. With regard to claim 7, which teaches the information about the arrangement includes 2-D or 3-D location information, Hirai teaches, in column 19, line 50, that there is preparation of items in a hierarchical structure so that

Art Unit: 2173

when information is not suitable, one of the items in a layer higher than the layer containing the information item can be used.

15. With regard to claim 9, which teaches a key frame locator including: the location, an annotation, and a related segment, also a segment locator designates a segment represented by a corresponding key frame, and a fidelity value, Hirai teaches, in column 11, line 9-15, information regarding address, name, and cut start/end points. Hirai also teaches, in column 5, line 6, that the degree of abstraction is determined for the images.

16. With regard to claim 11, which teaches an s-key frame including a key frame list, Ratakonda teaches, in column 15, line 26, that M-icons (key frames) can contain a list of M-icons. With regard to claim 11 also teaching each element of a key frame list having a fidelity value, Ratakonda teaches in column 5, line 6, that the degree of abstraction is determined for the images.

17. With regard to claim 12, which teaches a method of describing key frame data comprising: dividing a video into meaningful sections, and generating the key frames. Hirai teaches, in column 4, line 45-64 and column 10, lines 40-45, an apparatus for receiving moving picture data, dividing it into scenes, further dividing it up into cuts, and forming still images as representatives (key frames) of these subdivisions.

18. With regard to claim 14, which teaches that each element of a key frame list contains a key frame locator, Hirai teaches, in column 11, lines 9-15, that layer and address information for each M-icon (key frame).

Art Unit: 2173

19. With regard to claim 15, which teaches a key region locator including an ID, and a representative segment locator, that includes: a fidelity value, a annotation, and a list of related segments, Hirai teaches, in column 3, line 38 and in figures 4 and 5, source and individual frame names. Hirai also teaches a means of calculating a fidelity value (see column 5, line 6), an annotation (see column 11, lines 9-15), and a list of related segments (see column 11, lines 9-15).

20. With regard to claim 16, which teaches each element of a key region list including a fidelity value, Hirai teaches, in column 5, line 6, that the images contain a degree of abstraction.

21. With regard to claim 17, which teaches information about arrangement includes either a 2-D or a 3-D locator, Hirai teaches, in column 19, line 50, the tree structured arrangement of the information has an advantage that the tag buttons can be easily searched.

22. With regard to claim 18, which teaches a hierarchical video summary method comprising means of, dividing a video stream into meaningful sections, assigning key frames to a key image locator, a hierarchical summary list for describing lower summary structures, and structural information, Hirai teaches, in column 4, line 45-64 and column 10, lines 40-45, receiving moving picture data, dividing it into scenes, further dividing it up into cuts, and forming still images as representatives (key frames) of these subdivisions. Hirai further teaches, in column 11, lines 9-15, information being contained in the elements of a hierarchical structure giving address information and video structural information.

Art Unit: 2173

23. With regard to claim 20, which teaches that each hierarchical summary structure is represented by an image representative of a specific segment, Hirai teaches, in column 16, line 1 and in figure 1, how in the hierarchy each M-icon (key frame) has its own information zone.

24. With regard to claim 21, which teaches that each component of the lower hierarchical summary list uses a hierarchical/recursive summary structure as a lower hierarchical summary structure, Hirai teaches, in column 9, line 7 and in figure 1, how the hierarchy is organized from the top level story to the next level scenes to the next level of cuts where a cut is a subset of a scene, and each of these M-icons (key frames) has a summary element.

25. With regard to claim 22, which teaches that the hierarchical summary structure has summary level information, Hirai teaches, in column 10, lines 56-67, that each icon is given a layer level value (1, 2, . . . from the bottom layer).

26. With regard to claim 23, which teaches the hierarchical summary structure including a fidelity value, Hirai teaches, in column 5, line 6, and a level of degrees of abstraction as associated with frame images.

27. With regard to claim 24, which teaches a method for providing a video browsing interface comprising: dividing a video stream into meaningful sections, and providing a user interface to a predetermined display, Hirai teaches, in column 4, line 45-64 and column 10, lines 40-45, an apparatus for taking in moving picture data and dividing it up into scenes and cuts. Hirai also teaches in column 4, line 60, a means for displaying said hierarchical structure.



Art Unit: 2173

28. With regard to claim 25, which teaches the user interface providing the synthetic key frame in the form of view, Hirai teaches in figure 1, a visual representation of the M-icons (key frames).

29. With regard to claim 26, which teaches key frames being arranged in a time sequence, and the key frames arranged in a tree shape, Hirai teaches, in column 9, lines 35-51 and in conjunction with figures 8 and 10, how all of the M-icons are arranged in the order in which they occurred in the inputted moving picture, and that they are displayed in a hierarchical tree structure.

30. With regard to claim 27, which teaches key frames assigned to each node in a TOC form, Hirai teaches, in column 9, lines 25-34 and in conjunction with figures 8 and 10, managing information in an organized form, and then displays a TOC (figure for the hierarchy in figure 10).

31. With regard to claims 30, 32, 34, 36, and 38, which teach the synthetic key frame including one of a selected key frame and a selected key region from each of the plurality of sections, Hirai teaches, in column 4, lines 45-64, a group of frames combined into a representative frame.

32. With regard to claims 31, 33, 35, 37, and 39, which teach each of the plurality of sections comprising a video frame, and the selected one of the key frame and the key region comprises a portion of the video frame, Hirai teaches, in column 4, lines 45-64, a group of frames (video sequence or clip) combined into a representative frame and in column 3, lines 1-4, the association between the pictures in the hierarchal structure and their associated moving picture sequences.

Art Unit: 2173

33. Claims 28 and 29 are rejected under 35 U.S.C. 102(e) as being anticipated by Ratakonda, Patent # 5,956,026. With regard to claim 28, which teaches dividing video into meaningful segments, Ratakonda teaches in column 2, lines 13-27 and in column 9, lines 40-43, generating a summary of a video based on key frames by detecting shot boundaries, and locating shots. With regard to claim 28 also teaching providing a user interface, Ratakonda teaches, in column 13, line 35, providing a user interface. With regard to claim 28 teaching selecting s-key frames according to the user input, and reproducing a segment represented by the selected s-key frame, Ratakonda teaches, in column 5, lines 56-63, clicking on a particular frame and being able to display a normal playback of a video sequence.

34. With regard to claim 29, which teaches a reproducing step that reproduces a segment related with constituent elements of the contents of the key frame, Ratakonda teaches in column 5, lines 56-63, clicking on a particular frame and being able to display a normal playback of a video sequence.

***Claim Rejections - 35 USC § 103***

35. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

36. Claims 8, 10, 13, 19, 40, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirai and Ratakonda. Hirai teaches a method of

Art Unit: 2173

generating representative still images from a video sequence, a locating means comprising: a means of calculating a fidelity value (see column 5, line 6), a annotation (see column 11, lines 9-15), a list of related segments (see column 11, lines 9-15), and information on arrangement (see column 11, lines 9-15), but doesn't teach elements in a key frame list containing locators, the locator including an inherent ID, and image locator to locate the image, a representative segment locator, or a key image locator being a structure for designating an image using, a key image locator, a key frame locator, a s-key frame locator. Ratakonda teaches a video summarization system similar to that of Hirai, but further teaches elements in a key frame list containing locators, the locator including an inherent ID, and image locator to locate the image, a representative segment locator, and a key image locator being a structure for designating an image using a, key image locator, a key frame locator, a s-key frame locator. With regard to claim 8, Ratakonda teaches, in column 6, lines 45-67, a means for locating items in a key frame list. It would have been obvious to one of ordinary skill in the art, having the teachings of Hirai and Ratakonda before him at the time the invention was made to modify the method of generating representative still images of a video sequence of Hirai to include the representative image locating means of Ratakonda. One would have been motivated to make such a combination because locating these key frames and the video segment they represent can help in editing and/or viewing the video sequence.

37. With regard to claim 10, which teaches the locator including an inherent ID, an image locator to locate the region, a representative segment locator, a key

Art Unit: 2173

region locator that can contain: a fidelity value, an annotation, and a list of related segments (all rejected supra). Ratakonda teaches, in column 6, line 60, a key frames having specific IDs. Ratakonda further teaches, in column 6, line 63, the region that a key frame represents. Ratakonda also teaches, in column 6, line 62, that the key frame  $k_j$  represents a contiguous set of video frames. It would have been obvious to one of ordinary skill in the art, having the teachings of Hirai and Ratakonda before him at the time the invention was made to modify the method of generating still images of Hirai to include the key frames having specific IDs, the region that a key frame represents, and the key frame  $k_j$  representing a contiguous set of video frames of Ratakonda. One would have been motivated to make such a combination because the more information that is available, the easier it will be for the user to use the video software to effectively find the sought after segment, find out how representative it is, and find relative segments.

38. With regard to claim 13, which teaches the locator including an inherent ID, and image locator to locate the region, a representative segment locator, a key region list, a fidelity value (as rejected supra), and information on arrangement (as rejected supra), Ratakonda teaches, in column 6, line 60, key frames having specific IDs. Ratakonda further teaches, in column 6, line 63, the region that a key frame represents. Ratakonda also teaches, in column 6, line 62, that the key frame  $k_j$  represents a contiguous set of video frames. Ratakonda further teaches, in column 6, line 62, a list of the frames that a key frame represents. It would have been obvious to one of ordinary skill in the art, having

Art Unit: 2173

the teachings of Hirai and Ratakonda before him at the time the invention was made to modify the method of generating still images of Hirai to include the key frames having specific Ids, the region that a key frame represents, that the key frame  $k_j$  represents a contiguous set of video frames, and a list of the frames that a key frame represents. One would have been motivated to make such a combination because the more information that is available, the easier it will be for the user to use the video software to effectively find the sought after segment, find out how representative it is, and find relative segments.

39. With regard to claim 19, which teaches a key image locator being a structure for designating an image using: a key image locator, a key frame locator, and a s-key frame locator, Ratakonda teaches, in column 6, lines 45-67, a locator method for locating key images of all levels of the hierarchy, and all the frames which they represent. It would have been obvious to one of ordinary skill in the art, having the teachings of Hirai and Ratakonda before him at the time the invention was made to modify the method of generating still images of Hirai to include a locator method for locating key images of all levels of the hierarchy, and all the frames which they represent of Ratakonda. One would have been motivated to make such a combination because the inclusion of these location and identification elements will help the user in using the video software.

40. With regard to claim 40, which teaches the synthetic key frame including one of a selected key frame and a selected key region from each of the plurality of sections, Hirai further teaches, in column 4, lines 45-64, a group of frames combined into a representative frame.

Art Unit: 2173

41. With regard to claim 41, which teaches each of the plurality of sections comprising a video frame, and the selected one of the key frame and the key region comprises a portion of the video frame, Hirai further teaches, in column 4, lines 45-64, a group of frames combined into a representative frame and in column 3, lines 1-4, the association between the pictures in the hierarchal structure and their associated moving picture sequences.

***Response to Arguments***

42. The arguments filed on 11-13-2003 have been fully considered but they are not persuasive. The reasons are set forth below.

43. With respect to the applicants argument, that Hirai does not teach or suggest selecting one of a key frame and a key region from each of a plurality of selections and combining the selected one of the key frames and the key region from each of the plurality of scenes to form a synthetic key frame, as recited in independent claim 1.

44. In response, the examiner respectfully submits that Hirari does teach, in column 4, lines 45-64 and in column 5, lines 15-26, dividing a video sequence up in to scenes, cuts, and still images, and displaying them in an hierarchical format with each having a respective still images representing a section of the original video sequence. Hirari supports this idea in column 10, lines 40-45, where he mentions combining still images to form an new still image for the hierarchical structure.

Art Unit: 2173

45. With respect to the applicants argument, that Ratakonda does not teach or suggest synthesizing key frames or key regions into one image so as to generate a synthetic key frame.

46. In response, the examiner respectfully submits, that Ratakonda does teach, in column 9, lines 40-43, clustering key frames to form representative keyframes.

### ***Conclusion***

47. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

48. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

49. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis G Bonshock whose telephone number

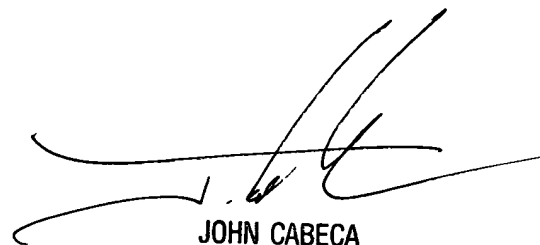
Art Unit: 2173

is (703)305-4668. The examiner can normally be reached on Monday - Friday,  
8:30 a.m. - 5:00 p.m..

50. If attempts to reach the examiner by telephone are unsuccessful, the  
examiner's supervisor, John Cabeca can be reached on (703)308-3116. The fax  
phone number for the organization where this application or proceeding is  
assigned is 703-872-9306.

51. Information regarding the status of an application may be obtained from  
the Patent Application Information Retrieval (PAIR) system. Status information  
for published applications may be obtained from either Private PAIR or Public  
PAIR. Status information for unpublished applications is available through  
Private PAIR only. For more information about the PAIR system, see [http://pair-  
direct.uspto.gov](http://pair-direct.uspto.gov). Should you have questions on access to the Private PAIR  
system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-  
free).

dgb



JOHN CABECA  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100